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ABSTRACT

Study objectives were to find out whether the use of disadvantaged women as parent educators of indigent mothers of infants and young children (1) enhanced the development of the infants and children, (2) increased the mother's competence and sense of personal worth, and (3) contributed to the knowledge of the home life of infants in the study. In weekly home visits, parent educators taught a series of exercises that stimulated infants' perceptual, motor, and verbal activities. Maternal verbal cues elicited the sequential arrangement of tasks. Variables were type, content, length, timing, and presence of instruction. A total of 124 babies (3 months - 2 years) were observed and tested. Except for a control group of 27, all infants received stimulation for at least 9 months. Study findings were that (1) paraprofessionals can be used to teach mothers, (2) a parent education program should be part of a comprehensive system of social change, (3) concrete, specific stimulation exercises are a sound curriculum approach, (4) how a child is taught may be more important than what he is taught, and (5) standardized techniques for measuring learning and development are needed. (DR)

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Early Child Stimulation Through Parent Education[1]

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The purpose of this project was to investigate a way in which early intervention into the lives of babies might break the poverty cycle. The project attempted to simultaneously raise the chances that the infant would reach a higher level of intellectual functioning and that the adult who mothers him would gain in competence and feelings of self-worth.

To achieve this purpose, the technique of using disadvantaged women to teach mothers how to stimulate their infants was developed in a pilot program which demonstrated that disadvantaged women can be selected, instructed and placed in other disadvantaged homes to teach mothers ways to stimulate the perceptual, motor and verbal activities of their infants (Gordon, 1967).

The concept that the earliest years of life are critical in the development of not only the personality but also in the intellectual development of the individual is becoming generally accepted by the scientific community and the society-at-large. However, there is a considerable empirical and theoretical gap between the generalization and the systematic implementation of procedures to foster development. For example, the nature of the experiences which serve to stimulate development, and their sequencing, is not fully understood. The timing and amount of intervention are

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unknown qualities. The interplay of family climate and task is not clear. In addition to these scientific questions, we face practical questions as to how various populations can be reached to use what is known.

Given the belief in the importance of early stimulating experience, and the data that it is not available to indigent families especially in the rural and small-town South, how do we bridge the gap? How do we transmit to indigent mothers the information, along with the skill, concerning ways to play with and interact verbally with their babies so as to enhance the babies' potentials for development?

Our problem was to investigate the effectiveness of a particular technique since it represented an innovation in child welfare services, which, if effective, could extend the reach of the professional and, in the long run, reduce the need for services as the participants became more capable of meeting their own needs.

The objectives were to find out whether the use of disadvantaged women as Parent Educators of indigent mothers of infants and young children (a) enhanced the development of the infants and children and (b) increased the mother's competence and sense of personal worth. It is understood that these two objectives may have a functional relationship with each other, but here we see them as two equally important outcomes which may be treated as independent. It is, of course, understood that other approaches might accomplish such objectives. The aim here was to investigate whether our particular complex of activities accomplished the goal.

A third objective, simply stated, was to increase our knowledge of the home life of infants in this population.

Procedures

(a) General Design

The major treatment variable was instruction of the mother by the Parent Educator in the stimulation exercises. This instruction was scheduled for once a week, in the home, on a regular basis. The mother was not only instructed in the mechanics of the exercises but also in the general attitudes toward seeing them as play, to be engaged in at odd moments when both mother and child might enjoy them. These materials, and some skills in toy-making with paper, encouragement of all forms of play, were presented in such fashion that the mother learned by imitation of the Parent Educator. The mothering role was not to be assumed by the Parent Educator, who was to involve the mother in the actual task. The case load was one Parent Educator to ten mothers.

To test the hypotheses and questions, each experimental family was followed until the child reached his first birthday. As babies reached this birthday, the mothers in the group who originally received stimulation were randomly assigned to the second year stimulation series or no stimulation group. As the original control babies reached their first birthday, the same type of assignment was made. This yielded four main groups: those receiving instruction from the baby's third month to his second birthday (final N = 36); those receiving instruction until the first birthday but not during the second year (final N = 36); those receiving instruction in the second year but not the first (final N = 25) and those receiving no instruction in either year (final N = 27).

In order to investigate whether it was this particular series or another pattern of equal amount of time spent in the home instructing the mother, three new groups, selected in the same fashion as the original

population and randomly assigned to series stimulation, "other" stimulation and a new control group, were started in July 1967. They were drawn from all the eligible babies born in the hospital between May 1, 1967 and October 31, 1967. The first two groups of mothers received instruction until the babies' first birthdays.

New Parent Educators who did not receive training in the series were recruited for half-time work from mothers who were working in Head Start and other early childhood programs. They were assigned on an equivalent case load basis. This plan was followed, rather than employing three new people, so as to control for the personality or other educator variables which might influence results with too few educators. They were trained in concepts of the importance of early stimulation and developed their own instructional procedures and content based upon their Head Start experiences and their general backgrounds.

The staff ratio of one graduate student (one-third time) supervisor to three educators was maintained.

The treatment variables were thus: type and content of instruction, length of instruction and timing of instruction, presence of instruction. The dependent variables were: changes in mother and developmental level of the child. Specifics are contained in the hypotheses.

(b) Sample

Mothers and their infants were identified at the birth of the latter by the obstetrics staff at the Teaching Hospital of the J. Hillis Miller Health Center of the University of Florida. The criteria for selection, in addition to the economic code on the hospital admission form, were: single birth, no breach or Caesarian delivery, no complications to mother

or infant, no evidence of mental retardation, and no evidence of mother's mental illness.

(c) Data Collection

The data on the mothers consist of a weekly home visit observation report, called the Parent Educator Weekly Report (PEWR), the Rotter Social Reaction Inventory, modified to reflect a fourth grade reading level (SRI); the Markel Voice and Language Assessment (MVLA); the Estimate of Mother Expectancy (EME - semantic differential scales); the Mother How I See Myself Scale (HISM); and a Final Observation Report including demographic and ecological data (FOR).

The data on the child include the PEWR, FOR, the Test of Performance on Series Tasks (ST), the Goldman Race-Awareness measure (RA), the "Griffiths Mental Development Scale" at age one and the Bayley Scale at age two.

The first year battery consisted of the ST, MVLA, Griffiths and the HISM scale. The second year battery contained the RA measure in addition and the Bayley test in place of the Griffiths. The RA measure was given to a sample of the total population. Fifteen E_1, 16 E/C, 19 C/E, and 14 C/C children constituted the RA sample. Series testing (ST), standard testing and the Markel Voice and Language Assessment (MVLA) were carried out by qualified staff members. The Final Observation Report was begun by the Parent Educators when the babies were 9 months and 21 months of age and completed at one year and 2 years of age. The Parent Educators were taught the administration procedures for the Goldman Racial Awareness Measure (RA).

Parent Educators also administered the Social Reaction Inventory (SRI) during two of the weekly visits. Testing necessitated the presence

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of a staff member in the home in addition to the Parent Educator. In order to reduce the mothers' discomfort, appointments for staff visits were made and discussed by the Parent Educator with the mother several weeks in advance. The EME, an Osgood Semantic Differential procedure, was administered at 9 and 18 months.

The Stimulation Exercises: Curriculum and Instruction Materials

The Stimulation Exercises (Series Materials) were originally developed in 1966-67 and modified slightly on the basis of the first year's experience. They were designed to be concrete and specific and to include not only a "task" for the infant to do but also instructions to the mother as to ways to engage her child in the activity. Basically, the series materials reflected our attempts to engineer knowledge about the sensory-motor period contained in the work of Jean Piaget. We developed items that would relate to object permanence, eventual conservation of liquids and mass, the organization of body schema.

Our belief was that the provision of experiences which require adaptation through accommodation will lead to modification of development and greater cognitive organization than what might be expected from purely "natural" or "spontaneous" growing-up in a culturally-deprived environment. The development of intellectual structure and self-esteem are functions of organism-environment transaction. Manipulation of the environment offers a way to modify development. Therefore, we selected or devised exercises which we assumed went beyond the evaluation of status and involved the introduction of instruction and experience.

We used extensively Uzgiris and Hunt (1966) in the compilation of

the four series of exercises for stimulation of infants during the first year of life. We included only those tasks we deemed simplest to carry out and evaluate. We eliminated those requiring a sophisticated observer to assess accurately infant responses to the stimuli because neither our Parent Educators nor the mothers would be able to determine "success." In addition, we selected only such tasks in which either no material objects were necessary or where such objects could be found in culturally disadvantaged homes, easily made or procured. A survey of available Soviet literature also provided some instructional tasks.

We faced an apparent inconsistency between the theoretical position that instruction precedes development (Vygotsky, 1964), that function modifies structure, and the reliance on age-graded developmental norms as guides for task placement. Although the developmental norms often suggest an essentially maturational orientation, our view was that they represented, in conjunction with the Uzgiris and Hunt scale, the best data available for creation and placement of tasks and experiences.

Because our position is that the most significant setting for infant learning is one in which there is a positive emotional climate, we attempted to include in the instructions to the mother the importance of treating these tasks as games and fun, thereby helping the child to develop positive feelings toward his mother and toward doing the tasks.

The series items did not stress basic locomotor skills that might conceivably fit into the normal maturation sequence. However, the tasks were sequenced so that the early ones were for infants who could not sit up, the next were for those who could sit, followed by those which assumed that the child was mobile.

Our assumption was that a systematic Piagetian sequential arrangement of tasks presented in an orderly fashion would lead to cognitive growth along with personal feelings of adequacy. However, the instructions to Parent Educators were that they were not to present the tasks within a series but were to take into account the individual performance of the infant: there were no set rules that task IV:3 must follow IV:2. Generally, tasks within a particular series were completed before the next series was introduced. The pattern was to present the child with a series, find out what he could do, and make this task the entry point for the other items in the series. When he was successful in these tasks, in the judgment of the mother and the Parent Educator, the next series was then introduced. In this way the mother and the Parent Educator jointly determined the rate of progress of the child and the particular sequence which he followed.

Further, from our review of the work of language researchers, we included labeling and action words designed to increase the number and type of words used by the mother with the child. The verbal stimulation materials involve a change in speaking habits of the mother. We felt that verbal stimulation would be an important phase of improving the mother-child transaction.

In summary, the basic theoretical position which guided selection of activities was a synthesis of Bernstein (1960) and the empirical work of Hess and Shipman (1965) in which they stated that the language of the home structures the thought processes and, in turn, the behavior of the child, with the basic Piaget type task which was planned to lead to labeling, categorizing, classifying behavior as the youngster grew. We assumed that stimulation exercises could play a role in modifying maternal language behavior in the mother-infant transactional situation. We included

instructions to call the baby by name and to describe objects because it is in the area of descriptive adjectives and abstract terms that vocabularies are likely to be inferior. To some degree, the verbal elements in these series were the most crucial in our thinking. We felt that the use of verbal cues accompanying other tasks would play a vital role in language development.

Summary of the Results

We set out to accomplish three objectives: To find out whether the use of disadvantaged women as Parent Educators of indigent mothers of infants and young children: 1) enhanced the development of the infants and children, 2) increased the mother's competence and sense of self-worth, and 3) contributed to our knowledge of the home life of infants in our population. A fourth objective, although not stated as such, was to continue the demonstration of the use of paraprofessional Parent Educators as a model for the successful employment of disadvantaged women.

The results relating to the first objective indicate that at the end of the first year, children whose mothers had been involved in the project were superior to control children on both the "Griffiths Mental Development Scales" and on the series material designed originally as teaching materials for the project. At the end of the second year, children whose mothers had been in the project from the beginning or whose mothers entered the program of Parent Education when their child was one year of age were superior on the series material to control children; but the children of mothers who had only the first nine months of the program (three months to twelve months) were not superior to the control

children. The pattern of scores on both the Griffiths and Bayley Scales show that the verbal area lags behind those areas involving motor skills. Generally, the first objective was met.

The results in relation to the second objective indicate that we were partially successful. Mothers for whom we had both pre and post information moved toward a more internal control of reinforcement orientation. They now felt they had more control and more influence over what was happening in their own lives than they did when they entered the project. The paralinguistic measure indicates positive but not significant movement. The measure of self-esteem failed to reveal any changes. However, our data show that these mothers entered the project low in self-esteem and high in external orientation. The fact that this program of minimum intervention led to movement on the latter and on the voice measures is of practical significance.

Our third objective was to increase our understanding of the home life of these infants. It is obvious that we have learned a great deal about the life setting of poverty families in the rural and small-town region in which we worked. Of special note is the large range of individual differences in child care practices and verbal input in the homes which permeate the so-called culture of "poverty." Our findings suggest to us a continuing need to learn more about the way individual factors within a social class or ethnic group relate to achievement. The measure of maternal expectancy, for example, shows that sex role expectation and the mother's view of how well her child matches her ideal influence child performance. Further, we have evidence that verbal interaction

within the home bears a relationship to the mother's view of her control of her destiny and also some relationship, although small, to child performance within the poverty group. Other research has indicated the importance of both these variables when the total social class range is included. Our data indicate that, within the group that some people tend to view as homogeneous, these differences exist and exert an effect on the child. The marital situation indicates that there is a higher degree of children being reared solely by women in this population than the general statistical average. Virtually half our children are being reared in fatherless homes, and we have some indications that the poorest homes, in terms of contributing to the child's intellectual growth, may be the homes of single mothers who have never been married. The health data indicate that these children suffer handicaps from the beginning in relation to middle-class children in the amount of illness with which they must cope in the first two years of life. The data we accumulated in relation to the above objectives offers a number of leads for future programs of Parent Education.

Our fourth objective, although not stated as such, has been clearly met. We have demonstrated the viability of a program of parent education using paraprofessionals as teachers of mothers in their own homes. The stability of the Parent Education group, the statement of their own perceptions, the effects on families and on children all stand as indicators that this model is a workable scheme.

Discussion

First, we have demonstrated that paraprofessionals can be successfully used as educators of mothers in a home visit program. Parent

Educators are able to maintain contacts, grow in the job, develop their own self-esteem along with their skill, and create new careers for themselves which are socially useful and psychologically satisfying.

If we need to find employment for many disadvantaged women who will be required to work, then the role of Parent Educator can be expanded so that many women can learn to teach their friends, neighbors and residents of their communities better ways to interact with their children.

Second, we have learned that a program of parent education, in order to make sufficient impact, must be embedded in a comprehensive system of social change. Many of our mothers, even though willing, were unable to avail themselves of the learning opportunity because of the overwhelming influences of deleterious life circumstances. Adequate housing, adequate food, adequate medical services, adequate income, adequate power are all intertwined in a single system with adequate parent education. Over the years we have had numerous stories from our Parent Educators about families who needed commodity foods but were not qualified because of some legality. We know of families who need clothing, medical services, nutritional information. In a number of these cases, Parent Educators were able to seek out help from volunteer agencies or some branch of county government. In other cases, we remained frustrated because of the various legal restrictions which served to make many poverty families ineligible for certain kinds of help.

Our Parent Educators were able to "make it" because of the job situation, but some of our mothers who dropped out could not overcome such barriers. One of the changes we noted in our Parent Educators was the effect of steady income in an esteemed job in the university setting. They had opportunities to learn successful management of credit through

the credit union, they learned about social agencies so that many of them were able to secure better housing, better medical care, and additional formal education. They also were able to become involved in community action programs such as the Governor's "Operation Concern." These benefits which they derived must be incorporated into a program so that they become available to all. The Parent and Child Center concept comes closest to this systems approach.

Third, the curriculum of parent education as used in this program was confined to the development of concrete, specific exercises for mothers to engage in with their children. Basically, this is a sound and successful notion.

However, a curriculum which attempts only what we attempted may be, in the long run, too narrow to make sufficient change in a child's orientation toward the world and the culture beyond his family and group. We noted the fearfulness with which two-year-olds approached our testing situation in contrast to middle-class children. We need to divise a curriculum which stresses and utilizes curiosity and openness and exploration far more than we attempted in this pilot effort. This creates a variety of problems, both in the training of Parent Educators and in their teaching of mothers.

Of major importance to the project was not simply the existence of sets of materials, although their existence made the job of the Parent Educator more practical and teachable, but the way in which the Parent Educator introduced the tasks to mother and infant. Because of the basic design of the project, it was not possible to obtain frequent observations by faculty or research staff of actual presentations on home visits. The PEWR does not contain information as to how the task was conveyed. Training

operations were based on the notion that sufficient demonstration and role playing would ensure a somewhat uniform type of presentation easily understood and copied by the mother, and offering the child experiences and instruction in performing the tasks and exercises. A basic problem in task development which we faced but did not necessarily solve was how to write a task so that a non-professional and a mother could comprehend and follow but not be completely structured by what was written on the page. Tasks, when taught directly and by virtually rote methods, become test or evaluation items instead of instructional aids. Observation on home visits pointed out the problem to us and a considerable effort was made to help the Parent Educators view a task as a point of departure, but we are not convinced that this was successfully accomplished. This is not to assume that the fault lay in either the training or in the capabilities of Parent Educators. Observations of teachers in regular classrooms clearly illustrate that this is a common failing. The problem may be defined as locating the entering behavior of the child and solving what Hunt calls "the problem of the match " How, if a child is not able to perform a task at initial presentation, is the task then so structured, broken down, and presented? How can the Parent Educator and mother find out what the child can do, and use this as a beginning point for helping him learn a total task? For example, a task in the stimulation booklet indicates that the child is to hand the mother a block by color. An earlier version of this task placed three blocks in sight, for example, red, blue, and yellow, and the mother would say "hand me the red block." Mothers followed these directions after they pointed out the block and said to the child "this is red." What happened when the child could not perform? One pattern was for the mother to simply

restate the directions in a somewhat louder tone of voice. A more "learning" orientation might have investigated three of the elements: "hand me," "red," "block." It might be that the child could not understand what it was the mother wished, or it might be that he could not identify by color. The process of helping the Parent Educators and mothers to abandon repetition of directions in a louder tone of voice and the adoption of a task analysis approach has by no means been solved in this project. We developed new tasks later in the program when we became aware of the problem to free the mother from being confined to behaving as though in a test situation. We included specific directions to allow the child to make other arrangements, to play with the materials, and to stay with the materials after he has had a chance to do the task with his mother.

Home visit observations led us to a conclusion that mothers and Parent Educators were prone to use a task so that as soon as a child was able to do it he rarely had an opportunity later to overlearn or to engage in the task purely for fun. Both Parent Educators and mothers approached these tasks in a serious vein. Perhaps their seriousness decreased the opportunities for the children to meet one of our hopes, that is, to have opportunities to assimilate through play without the need to achieve a particular goal. The notion that the familiar becomes desirable, a point so well made by Hunt, was one we did not perhaps get across. Once a task became familiar, the Parent Educator would check it off on her list and it seemed that she and the mother would not reoffer the child an opportunity to enjoy that particular activity.

We learned from this experience that the development of a curriculum guide or a set of curriculum materials, attractive though they may be,

and useful beyond the borders of the project, is but the first step in the instructional process. We discovered the problem, but we did not solve it. What is needed is careful examination of the process of instruction used by Parent Educator and mother so that cues can be found for assisting them in teaching rather than ordering, or telling, or merely presenting materials. I would reiterate that the problem is more widespread than being confined to this group. Although Hess and his associates at Chicago have also indicated that lower-class mothers were prone to be non-specific in directions and not to rely on positive motivation, years of observation of classroom teachers indicates that very often the process of instruction is not made explicit by professionals. Children are often told in classrooms, "Go think," as if some magic process will then take place.

We wish to re-emphasize the importance of designing materials, and the instructions which accompany them, so that the child's horizons are expanded and the mother comes to enjoy and value his new scope rather than restricting him. We need to develop and provide for parallel tasks which build laterally as well as horizontally. In task development we face the problem of space and equipment, particularly as the child reaches 18 months. We need to help the Parent Educator make more use of her ingenuity and continue to involve her in task development so that a program does not become stereotyped. Further, we need constantly to remember that the mother is the target and not only the child. Tasks must be designed so that the mother sees some sense in and gets some enjoyment out of them, and can see the child grow in his ability to cope with them. Otherwise, we run the danger of the mother becoming stale. Goals of curiosity, joy, openness to new experiences must be met for both mother and child.

Fourth, how one teaches is probably of more fundamental import at these early years than what one teaches. This relates to comments directly above. We need to learn far more than we now know about the general home conditions which influence intellectual and personality growth. Our data suggest the importance within this population of the role of total adult verbal interaction in a direct face-to-face situation with the child. We found radios and television sets would be on in many of these homes with no one paying the least attention. They were noise in the system. We believe that language development is learned best in an interpersonal setting in which the child receives feedback from his environment and in which his actions are accompanied by descriptive words from the significant adults who surround him. We need to find more ways to encourage parents to communicate with their children, to realize that what they say, how they say it and when they say it makes a difference.

Further, we often found that children were not permitted to make mistakes. Parents and Parent Educators would overly assist the child to perform a task in the right fashion and not necessarily let him learn through any semblance of a discovery approach. Parents also tended to believe there was one right way to perform a task. If a child was to pile different sized rings on a spindle, then the parent behaved as though the rings must be arranged in an ordinal fashion and would stop the child from picking up the wrong ring. Opportunities for trial and error accompanied by language were lacking in these homes, and many provisions must be made for introducing these opportunities. Part of our task is to help the mother understand how important her evaluation of the child is on his self-concept, how important her expectations for him are on his development, how important it is to provide a variety of opportunities and

challenges rather than a rote learning approach. Again, our own tasks may to some degree have fostered some of the rote learning procedures, although we suspect that these techniques are deeply embedded in the culture. Parent education has many subtle changes to bring about. The way in which Parent Educators are themselves taught must provide clear models to them of ways in which they are expected in turn to teach the mother. If materials or instruction of Parent Educators lend themselves to a closed approach, then we cannot expect them to teach a mother to be open and experimental in playing and working with her child.

The results of both Palmer's and Weikart's work would tend to support the view that it is not the curriculum materials per se which make the difference, but that the nature of the interpersonal relationship and the manner of delivery are of significant importance in learning. The tasks, by themselves, do not constitute a total curriculum. Considerable elaboration on each task is needed in helping disadvantaged mothers use them effectively....

Eighth, when we shift from program goals to problems of methodology, we are very concerned that current measurement techniques are woefully inadequate for assessing learning and development in either infants or mothers. Our own series material proved as useful or more useful than standard intelligence tests. In effect, the concept of teaching the child and measuring him to see if he has learned what you have taught him, which is now being applied in primary grades as a substitute for the intelligence test, may be our best approach in infancy and pre-school as well.

We need to examine many more parameters of infant behavior than those measured in a standard test situation. Schaefer's notion of task

orientation is a step in the right direction. We need to develop many observational measures of child performance in natural settings and study the ways in which these change in relation to materials and instruction as they are introduced. The measurement of maternal attitude is another difficult area.

The need to introduce some standard techniques which can be applied in a variety of projects so that some comparative measures can be studied is crucial as workers attempt to generalize from the various present pilot efforts. Further, we need to develop measures that do not require a high degree of skill and sophistication to administer because of the lack of personnel in many places for carrying on the kind of careful testing involved in Griffiths, Bayley and Stanford-Binet type testing. Studies of methodology are essential to progress. Just as it takes years to perfect a new surgical technique, it takes years to perfect a good psychological measurement technique. Support in the way of funds is an absolute necessity if we wish to make sound progress in our assessment techniques so that we avoid the problems that have faced Head Start and other programs when poor evaluation jeopardizes what may be a good program. It is fairly characteristic to suggest that further research is necessary. Although this is a trite statement, it nevertheless must be made. We need many efforts such as this project to try varieties of approaches to meeting the needs of our mothers and their infants. As a part of this effort, careful research and evaluation designs and basic methodological studies including instrument development must be built in. Large-scale service operations are probably necessary, but even these should have heavily supported evaluation. We need to realize that long-range programmatic efforts, including longitudinal designs, are necessary before we can arrive at

what might approximate the optimum mix of procedures for maximizing child development. As an analogy, we can examine what it costs and how much planning went into sending an astronaut to the moon, how many mistakes were made along the way which did not lead to cancelling the program, but suggested new solutions. We will make mistakes and have made mistakes in programs of intervention, but these should not be used to stop programs but should be used to learn how to solve the problem. If we can solve the problem of getting a man to the moon, we can expend the effort and solve the problem of helping our children grow. We can ask for nothing less for the children of the nation.

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